



Comparison of stretching vs myofascial release on Iliotibial band syndrome in state level runners

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Abstract

Background: Iliotibial band syndrome (ITBS) is the most common cause of lateral knee pain in runners. Iliotibial Band Syndrome (ITBS) has a incidence as high as 12% of all running-related overuse injuries. It is an overuse injury that results from repetitive friction of the iliotibial band over lateral femoral epicondyle, with biomechanical studies demonstrating a maximal zone of impingement at approximately 30 degrees of knee flexion. The aim of the study was to compare the effect of Stretching and Myofascial Release on Iliotibial Band and find out the most effective treatment on Iliotibial Band syndrome (ITBS).

Method: 30 runners were randomly selected for a 2 weeks treatment program. We assessed the pain using Numerical Pain Rating Scale (NPRS) and lower limb disability using Lower Extremity Functional Scale (LEFS). Score was recorded by scales before and after treatment.

Results: Stretching was more effective than Myofascial Release on Iliotibial Band Syndrome in state level Runners. There was significant decrease in pain (6.13 ± 1.50 , 3.20 ± 1.52 , $p < 0.0001$), and increase in lower limb functional ability (64.80 ± 1.50 , 30.66 ± 13.06 , $p < 0.0001$) compared to Myofascial Release.

Conclusion: Stretching demonstrated beneficial effect on Iliotibial Band Syndrome (ITBS) in State level Runners.

Keywords: ITBS, LEFS, NPRS, State level runners, MFR, stretching

Introduction

The ITB is considered a continuous portion of tensor fascia lata muscle, with some contribution from the gluteal muscles. Iliotibial band syndrome (ITBS) is the most common cause of lateral knee pain in runners. Iliotibial Band Syndrome (ITBS) has a incidence as high as 12% of all running-related overuse injuries. It is an overuse injury that results from repetitive friction of the iliotibial band over lateral femoral epicondyle, with biomechanical studies demonstrating a maximal zone of impingement at approximately 30 degrees of knee flexion. Studies have also demonstrated that weakness or inhibition of lateral gluteal muscles is a causative factor in this injury. The Syndrome results from repetitive friction of the IlioTibial Band sliding over the lateral femoral epicondyle. The symptoms are pain on the outside of knee and hip, pain that generally disappears as the band is stretched out and becomes more flexible, pain that improves with rest.

Severe lateral knee pain associated with ITBS may be intensified by myofascial restrictions that are directly or indirectly associated with the excessive friction of the ITB sliding over the lateral femoral condyle. Myofascial restrictions include central and attachment trigger points, muscle contractures and fascia adhesions.

The immediate treatment goal is to reduce local inflammation at the site of ITB friction over the lateral epicondyle. Ice massage, phonophoresis, or iontophoresis are useful modalities. Oral nonsteroidal anti-inflammatory medications also may help reduce pain and inflammation. None of these are effective, however, unless the runner modifies activity. Sometimes all that is necessary is to avoid downhill running or running in one direction on the track.

All running and any other potential exacerbating activity, such as cycling should be avoided to reduce the repetitive mechanical stress at the femoral condyle.

Iliotibial band tightness can be checked using obers test. Lower Extremity Functional Scale can be used to check lower limb functional ability. It contained various activities such as squatting, walking a mile etc and participant has to rate between 0 to 4 (0 means extreme difficulty and 4 means no difficulty).

Materials and Method

This study was conducted on runners with Iliotibial Band Syndrome. Subjects were selected with random sampling. The primary aim of this study was to compare the effect on stretching and myofascial release on iliotibial band syndrome in state level runners and objective was to find out the effective treatment for iliotibial band tightness. Inclusion criteria for the study were: runners between age group of 18 to 35 years and runners with positive obers test (iliotibial band tightness). Exclusion criteria were: any recent lower limb fracture, muscle tendon injury, dislocation or any other pathology of knee and hip.

Eligible runners were distributed in 2 groups (Group A and B) by 1 to 1 allocation. Group a runners received self-stretching and Group B runners received stretching plus myofascial release for 2 weeks. Before and after intervention pain was assessed using Numerical Pain Rating Scale (NPRS) and lower limb functional ability was checked using Lower Extremity Functional Scale (LEFS). No changes were made in methodological design throughout the study.

Table 1: Lower extremity functional scale

	Extremely Difficult or Unable to Perform	Quite a Bit of Difficulty	Moderate Difficulty	A Little Bit of Difficulty	No Difficulty
a. Any of your usual work, housework, or school activities	0	1	2	3	4
b. Your usual hobbies, recreational or sporting activities	0	1	2	3	4
c. Getting into or out of the bath	0	1	2	3	4
d. Walking between rooms	0	1	2	3	4
e. Putting on your shoes or socks	0	1	2	3	4
f. Squatting	0	1	2	3	4
g. Lifting an object, like a bag of groceries from the floor	0	1	2	3	4
h. Performing light activities around your home	0	1	2	3	4
i. Performing heavy activities around your home	0	1	2	3	4
j. Getting into or out of a car	0	1	2	3	4
k. Walking 2 blocks	0	1	2	3	4
l. Walking a mile	0	1	2	3	4
m. Going up or down 10 stairs (1 flight)	0	1	2	3	4
n. Standing for 1 h	0	1	2	3	4
o. Sitting for 1 h	0	1	2	3	4
p. Running on even ground	0	1	2	3	4
q. Running on uneven ground	0	1	2	3	4
r. Making sharp turns while running fast	0	1	2	3	4
s. Hopping	0	1	2	3	4
t. Rolling over in bed	0	1	2	3	4
Column totals:		1	2	3	4

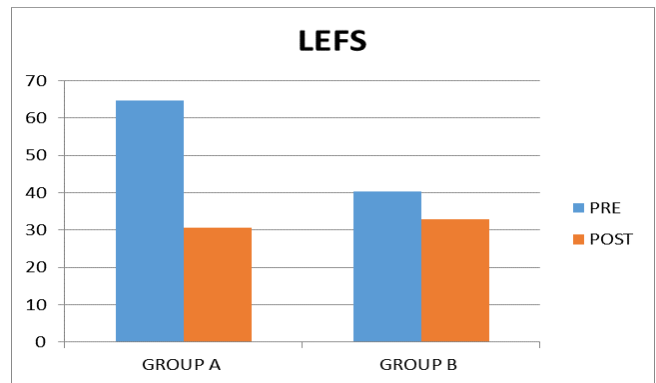
Score: ____/80.
 Error (single measure): ±5 scale points.
 Minimum detectable change: 9 scale points.
 Minimal clinically important difference: 9 scale points.

Results

The present study was conducted among 30 runners with Iliotibial Band syndrome. LEFS scale was scored before and after treatment protocol of 2 weeks.

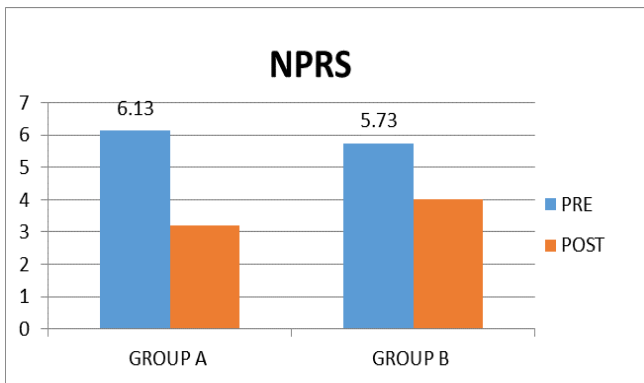
Table 1: Numerical pain rating score

	Group A	Group B
Pre	6.13±1.50	5.73±1.33
Post	3.20±1.52	4.00±1.52
p value	<0.0001	<0.0015



Graph 2

Interpretation: Graph no 1 shows that, LEFS score 64.80±7.45 for Group A was reduced to 30.66±13.06 with p value <0.001, whereas for Group B LEFS score 40.40±12.83 was reduced to 33.0±11.35 with p value <0.0011.



Graph 1

Interpretation: Graph No. 1 shows that, NPRS scores 6.13±1.50 for group A was reduced to 3.20±1.52 with p value <0.0001, whereas for Group B the NPRS score 5.73±1.33 was reduced to 4.00±1.52 with p value <0.0015.

Table 2: Lower extremity functional scale score

	Group A	Group B
Pre	64.80±7.45	40.40±12.83
Post	30.66±13.06	33.0±11.35
P value	<0.0001	<0.0011

Discussion

The present study was conducted among 30 Runners with Iliotibial Band Syndrome. The study was conducted on Runners residing in Pune. The study was conducted with the aim to compare the effect of stretching and myofascial release on iliotibial band syndrome in state level runners. Runners within age of 18 to 35 years were assessed. Total number of 34 Runners were assessed out of which 4 Runners were dropouts. 30 Runners contained 18 males and 12 females.

In this study, Graph 1 show the NPRS ratings of Group A and Group B before and after the treatment protocol. Graph 2 show the LEFS ratings of both the Groups A and B before and after the treatment protocol. Table No. 1 shows that, NPRS scores 6.13±1.50 for group A was reduced to 3.20±1.52 with p value <0.0001 which is extremely

significant, whereas for Group B the NPRS score 5.73 ± 1.33 was reduced to 4.00 ± 1.52 with p value < 0.0015 . Table no 2 shows that, LEFS score 64.80 ± 7.45 for Group A was reduced to 30.66 ± 13.06 with p value < 0.001 which is extremely significant, whereas for Group B LEFS score 40.40 ± 12.83 was reduced to 33.0 ± 11.35 with p value < 0.0011 .

In this study there was a significant reduce in pain and increase in the lower limb functional ability in Runners which received stretching treatment. Pain was also reduced in runners who received myofascial release treatment but the pain was reduced more in runners who received stretching treatment. As shown in the study of Michael F, in 2005 which says that lengthening of ITB tissue as well as force generated within the stretched complex was greatest when adding an overhead arm extension to the standing ITB stretch. Soft tissue stretch significantly improves pain and often serves to definitively treat the condition Isolated stretches for tight muscles is particularly effective in releasing myofascial restrictions. Stretching also results in significant acute stress relaxation in the muscles.

Conclusion

In this study we concluded that stretching was more effective in reducing pain and increasing lower limb functional activity in runners with Iliotibial band Syndrome.

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